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Waste education and awareness strategy: towards solid waste management (SWM) program at UKM

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Abstract

Most of the environmental problems could be caused by manmade pollution which not only damage natural resources, but also its effect is also dangerous. In order to encourage waste minimisation, re-use, recycling, and reduce, have been introduced in UKM. Critical to the success of these programs are fullfill by participation and commitment by the members of UKM. The aim of this study was to assess the assess the attitudes and behaviour concerning SWM among first year students (n= 591) using questionnaire survey. It was determined that 60% of the students had positive attitude towards this program. Results also indicated that all of the students showed high levels of practices and responsibility regarding SWM. However, there is still the need for the university to encourage through education and awareness on managing solid waste in the campus among the first year students. To ensure compliance with SWM program, UKM must make sure participation in the program it introduces remains high. This can be done by raising the students' education and awareness level of waste. To achieve this, a carefully thought-out waste education and awareness strategy must be developed in order to change students' habits and behaviour and traditions.

Keywords: Attitude; awareness strategy; behaviour; solid waste management; waste education

1. Introduction

In 2008, 23,000 tons of waste is produced each day in Malaysia, with less than 5% of the waste is being recycled.In Kuala Lumpur, the capital of Malaysia, waste generation is about 3,000 tons a day and forecasts show that this will increase further in the coming years. Whereas in Selangor, waste generated in 1997 was over 3000t/day and the amount of waste is expected to rise up to 5700t/day in the year 2017. An alarming 19% of waste ends up in our drains, which then causes flash floods and drainage blockage. This situation has been and will be reducing our environmental capacity to sustain life (Agamuthu Periathamby, Fauziah Shahul Hamid & Kahlil Khidzir, 2009).

On an average per person generation of solid waste is 1kg per day in Malaysia approximately 26 million people in the country produce 26 million kilos of solid waste every single day (Sapan Agarwa, 2007). Modern lifestyle has led to more acute waste problems, convenience products generally require more packaging, careless habits

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associated with greater affluence lead to greater quantities of waste, as demonstrated by discarded wrappers from the inevitable fast food outlet, and the modern day waste contains a higher proportion of non-degradable materials such as plastics. The solid waste consists of 45% food waste, 24% plastic, 7% paper and 6% iron. Approximately 95-97% of waste collected is taken to landfill for disposals. The remaining waste is sent to small incineration plants, diverted to recyclers/re-processors or is dumped illegally. Today only five percent of the waste is being recycled, but the government aims to have 22% of the waste recycled by 2020 (Malaysia Environment-Geography-on line, 2010).

As part of 'Vision 2020' the government of Malaysia is seeking to improve environmental protection and integrate its solid waste management systems. Recycling is still at an infant stage in Malaysia; nonetheless with increasing environmental awareness, the government is starting to promote waste recycling by drafting policies and offering support to private waste management companies. It is also importing technologies from Japan and certain European countries, trying to provide a conducive environment for technology sharing (Sapan Agarwa, 2007).

The government has adopted a National Strategic Plan for Solid Waste Management with emphasis on the upgrading of unsanitary landfills as well as the construction of new sanitary landfills and transfer stations with integrated material recovery facilities. Municipal Solid Waste Management (SWM) is a basic sanitary service that is crucial for maintaining the health of urban and rural communities and protection of the environment. An Action Plan for a Beautiful and Clean Malaysia, the ABC Plan, was prepared in 1987, and since then no national plan for municipal SWM has been prepared (National strategic plan for solid waste management, 2005). Then a new Solid Waste Management Bill was adopted by parliament in June 2007. The bill is to drastically change the structure of solid waste management in Malaysia and to open up for the development of a completely new business sector. New concessions on domestic waste management will be introduced, as well as recycling, and handling of specific types of solid waste like plastic, paper, tin and glass is highlighted. Solid waste management is a priority area under the 9th Malaysian Plan, as can be seen by the government setting up a Solid Waste Department which is entrusted to enforce the Solid Waste Management Bill.

However our earth suffers from many environmental problems which need to be tackled at the individual level, requiring individuals to develop those attitudes which will guide them to environmentally supportive behavior (Ahmed & Mohammed Al- Mekhlafi, 2009). Formation and change of attitude are interwoven. People are always adopting, modifying, and relinquishing attitudes to fit the ever changing needs and interests. Attitude cannot be changed by simple education because acceptance of new attitude depends on who is presenting the knowledge, how it is presented, how the person is perceived, the credibility of the communicator, and the conditions by which the knowledge was received. Research in social sciences has shown that knowledge on a topic may increase, people may even change attitudes, but that the step to improved behaviors and practices is depending on a complex set of social and psychological factors.

2. Literature Review

A few previous studies (Dunlap, Gallup, & Gallup, 1993:Inglehart, 1995: Olli, Grendstad & Wollebaek, 2001) and the findings of Hines, Hugerford and Tomera (1986) showed that the level of consistency between environmental attitudes and behavior is affected by a person's knowledge and awareness, public verbal commitment and his/her sense of responsibility.

A study by Ayodeji Ifegbesan (2010) examined the level of awareness, knowledge and practices of secondary schools students with regard to waste management in Nigerian educational institutions. Using a structured, self-administered questionnaire, 650 students were surveyed from six secondary schools. Data collected were subjected to percentage, mean, standard deviation, t-test and chi-square statistical analyses. Findings revealed that secondary school students from the sampled zones were aware of waste problems on their school compounds, but possessed poor waste management practices. The study showed that propensity for waste management practices differ by sex, class and age of students. Significant relationships were observed between students' sex, age and class and their level of awareness, knowledge and practices of waste management.

Another survey study, by Nalan Demircioglu Yildiz, Hasan Yilmaz, Metin Demir and Süleyman Toyawareness (2011) showed that awareness and sensibility levels of campus people about environmental problems in Erzurum, Turkey was found to be 64.4%, which may be taken as moderate. Although people know the problems, they do not give importance to them. In this respect, the authors suggest that actions to be taken may be the repetition of the studies on the determination of the environmental sensitivity and development of policies based on their results;

enforcement and control of the legal regulations on this topic and announcement of the results of the studies or measurements to inform people on communication devices.

One of the greatest challenges facing Malaysia is despite the massive amount and complexity of waste produced, the standards of waste management are still poor. These include outdated documentation of waste generation rates and its composition, inefficient storage and collection systems, disposal of municipal wastes with toxic and hazardous waste, indiscriminate disposal or dumping of wastes and inefficient utilization of disposal site space.

Furthermore, the lack of awareness and knowledge among Malaysian community about solid waste management (SWM) issues, and being ignorant about the effect that improper SWM has to us has definitely worsened the problem. Environmental awareness is also low in Malaysia. Local Authorities often complain of lack of cooperation from the general public with respect to the provision of SWM services. Whilst the National Recycling Program undertaken by the Ministry of Housing and Local Government has contributed to a greater awareness of the need to preserve resources, public response, on the other hand, has been disappointing (National strategic plan for solid waste management, 2005).

Taking note of the seriousness of solid waste disposal the aim of this research is to identify the source of knowledge, attitudes, level of practices and behaviour concerning solid waste management (SWM) among first year students in The, Universiti Kebangsaan Malaysia because they are the future generations whom are expected to be leaders and will make decisions on environmental issues which could affect the sustainability of our existence in future.

3. Methodology

A self-administered questionnaire was used to assess students' sources of knowledge, attitudes, and practices towards the solid waste problem. In this study, a binary scale was used. The questionnaire consisted of 18 items distributed into four dimensions: attitude (7 items), awareness (4 items), sources of knowledge of SWM (1 item with 5 choices) and behavior/ practices towards solid waste problem (6 items). The sample of this research were 591 first year students from eight faculties in The Universiti Kebangsaan Malaysia, Bangi Campus. Data was analyzed using the Statistical Package for Social Science (SPSS) version 16 software.

4. Findings and Discussion

The results showed that 60% of the students had positive attitude towards this program, but however there are still 40% of them which showed negative attitude. This finding reflects the growing urgency to educate the students on SWM, so that they can change their negative attitude since they are in the first year. There is still a need to educate the students about the problem of solid waste as this helps in raising their awareness about the problem and their support in instituting waste management measures essential to help clean the university's environment. Public support towards helping in alleviating the impacts of the problems particularly on solid waste can only be possible if the public is knowledgeable about the problem and the management goals of the government.

Descriptive results also indicated that majority of the students showed high level of practices and behaviour regarding SWM. For the aspect of behaviour and practice level concerning SWM, the classification made depend on the mean score. We used a cut- off 7.59 to determine the high level of practices and behaviour. So for those subjects having mean score above 7.59 (SD= 0.93), they were said to have high behaviour and practice level concerning SWM, and those below that score was considered having low level.

This result support the findings of previous studies (Dunlap et al., 1993:Inglehart, 1995: Olli et al., 2001) and the findings of Hines et al. (1986) which suggest that the level of consistency between attitude towards environment and behavior is affected by a person's knowledge and awareness, public verbal commitment and his/her sense of responsibility. The transfer from attitudes to behavior can also be affected by lifestyle; many people, while professing to "correct" attitudes to the environment, are not ready to change their lifestyle in ways that might mean sacrificing certain forms of leisure and comfort for the sake of the environment. Other study has also found a weak and inconsistent relationship between environmental attitudes and behavior; usually attributable to a reluctance to give up the comforts of modern life (Diekmann & Preisendorfer, 1998).

5. Conclusion

The study examined the attitudes and behaviour and practice concerning solid waste management (SWM) among first year students. The respondents' show high level of behaviour and practice that they engage in waste management. This is because they value cleanliness and want to mitigate the possible disease occurrences. However, it is apparent that there is the necessity to develop student's attitudes and willingness to reduce problems related to SWM. To achieve this, we suggest that a carefully thought-out waste education and awareness strategy should be developed in order to change students' habits and behaviour and traditions. We also propose that waste management education must begin with school children.

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